



UMODPC



## RAIL OPERATIONS

612-404-03



## Surface Transportation



- What if unit equipment is non-roadable?.... or is beyond organic lift capability.... or is beyond 400 mile motor march criteria?



...Then you must depend upon commercially provided service .... ..... like rail!



## Responsibilities -- General



- The deploying unit & installation both have planning and execution responsibilities for major rail activities
  - Rail loading/unloading - Restraining Material
  - Rail site preparation - Rail car inspection





## Unit Responsibilities



- Unit commander: Overall responsible for preparing unit for rail operations
- Major unit responsibilities:
  - Prepare rail movement plan
  - Determine rail movement requirements
  - AUEL to DEL
  - Prepare equipment for rail movement
  - Load railcars



## Unit Responsibilities (Cont)



- Specific responsibilities:
  - Appoint an OIC for the rail operation
  - Designate safety officer
  - Coordinate with Director of Public Works for blocking and bracing material
  - Provide trained load teams



## Unit Responsibilities (Cont)



- Ensure vehicles are properly prepared/configured
  - Removing canvas and bows
  - Securing moving vehicle parts
  - Use FORSCOM/ARNG 55-1 & MTMCTEA Pam 55-19
- Coordinate logistical support for railhead ops
  - Lighting, latrines, mess, and medical



## Unit Responsibilities (Cont)



- Ensure tie-down teams have proper equipment
- Stage equipment
- Ensure sufficient numbers of cars are spotted
- Inspect rail cars
- Conduct safety briefings
- Prepare rail cars for loading
- Load equipment on rail cars



## Installation Transportation Office Responsibilities



- Computes railcars based on the shipping configuration of the equipment
- Orders rail cars based on deploying unit requirements.
- Inspects rail cars IAW AAR rules.
- Provides technical supervision for rail loading operations
- Liaison between MTMC and rail agent





## Installation Transportation Office Responsibilities (Cont)



- Notifies the Unit on type and quantity of railcars, and railcar arrival schedule
- Maintains rail loading schedule according to the movement order/directive





## Director of Public Works (DPW)



- Provides B & B materials for deploying units
- Deploying units must determine requirements & provide in advance to the DPW.





## Rail Carrier Representative Responsibilities



- Joint inspection with ITO rep before cars positioned at loading ramp.
- Inspection following railcar loading to ensure:

Loaded railcars comply with AAR rules



## Rail Load Plan -- FORSCOM Form 285-5-R



- Provides worksheet to assist in manual load planning
- TC-ACCIS provides automated rail load planning capability

A photograph of the FORSCOM Form 285-5-R, a rail load planning worksheet. The form is a grid-based document with various sections and fields for tracking rail car assignments and load details. It includes columns for car numbers, descriptions, and weights.



## Railcar Requirements



- Rail cars are obtained by ITO in the types and quantities required, based upon the deploying unit's requirements
- Deployment may be by commercial or "DODX" railcars





TM 55-2200-001-12



- In TM 55-2200-001-12 (extract H-1), The Official Railway Equipment Register table is used to determine the types of rail cars needed, and their associated capacity and dimensions

TM 55-2200-001-12  
-- Extract H-1



DEPARTMENT OF DEFENSE,  
MILITARY TRAFFIC MANAGEMENT COMMAND-WASHINGTON, D.C. 20315.

Reporting Marks and ACI Nos.—DODX-158

REVIEW ARTICLE

#### Freight Equipment

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## Railcars



- There are several types of railcars used for military exercises and deployments
  - Open Top Cars
  - Flat Cars
  - Gondolas





## Railcars (Cont)



- Closed Cars
  - + Box car
- Specialty Cars
  - + Multilevel
  - + Heavy lift
  - + TOFC





## ITO Requests Rail Routing from MTMC



MTMC obtains routing from rail company  
selected



# Rail Loading Requirements and Procedures



## Preparing Unit Equipment for Rail Movement



- The deploying unit is responsible for preparing its equipment for rail movement





## Preparing Vehicles Prior to Loading



- Vehicle Preparation Requirements:
  - All lifting and tiedown shackles attached to vehicles
  - Fuel tanks no more than 3/4 full
  - Canvas and bows removed or banded
  - Windshields Protected





## Preparing Vehicle Prior to Loading (Cont)

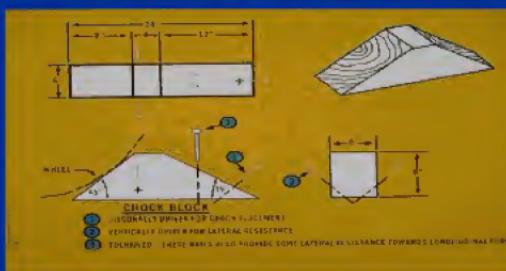


- Reduce vehicle configuration
- Secure any materials or equipment
- Bands must be approved by AAR.
- Ensure that hood latches are functional and secure.





## Blocking and Bracing Materials



- Blocking & bracing materials are used to prevent cargo from shifting



## Rail Site Facilities



Lighting

Medical support





## Rail Site Facilities (Cont)



- Safety Procedures
- Command and control facilities
- Lighting
- Latrine facilities
- Messing
- Medical support





## Safety Requirements



- Appoint Safety OIC or NCOIC
- Qualified and properly equipped medical personnel on site
- Brief all soldiers on established safety procedures:
  - Avoid electrical wires, poles, switches
  - Never walk between or backward on rail cars
  - Running & jumping between cars is prohibited



## Safety Requirements (Cont)



- No sleeping in or around cars
- All personnel stay clear of main track
- Personnel stay clear of rail cars when vehicles are moving on cars
- Minimum speed is used when driving vehicle onto railcars.





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## Rail Site



- Rail site must be clean and free of debris.
- Ensure spanners are available.
- Ensure that MHE is on site for equipment that requires MHE support





## Inspection of Railcars



- Rail cars are inspected prior to being positioned at final loading locations
- Purpose of inspection is to determine the cars suitability for the intended equipment/vehicle loads
- After railcars are accepted, Military accepts full responsibility to comply with AAR rules



## Inspection of Railcars (Cont)



- Deploying unit and ITO representative inspect railcars prior to loading equipment. Checks include:
  - Doors on closed cars open and close and interior is free of debris
  - Open car decks are free of residue and old blocking & bracing materials
  - Chains are present and serviceable on chain rail cars



## AAR Loading Rules



- The AAR makes no provision to protect cargo from the elements or forms of damage





## AAR Loading Rules (Cont)



- The loading rules are applicable to both the railroad and the ITO.

- ① Loads can not exceed railcar limits

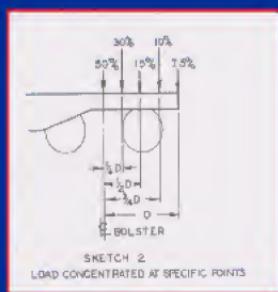
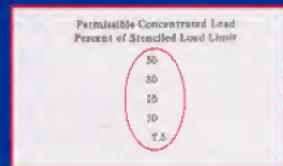




## AAR Loading Rules (Cont)



② Do not exceed  
one half the load  
limit of the car  
on any axle.





## AAR Loading Rules (Cont)



- ⑥ Balance load evenly on car
- ⑦ When loading large and heavy items not covered by rules, load largest dimensions and heaviest weight on the floor to prevent tipping
- ⑧ Secure items having a high center of balance to prevent tipping while in transit.



## AAR Loading Rules (Cont)



- ⑥ Use idler cars when loads extend beyond the end of the loaded car.



- ⑦ Do not place heavy equipment on trailers that will ride on flat cars or TOFC



## Vehicle Spacing



- Vehicles require a minimum of 10 inches of space between vehicles.



Wrong spacing



## Loading Multilevel Cars



- Exercise caution when loading vehicles on or moving vehicles through multilevel rail cars. Check deck heights
- Decks may be different heights causing vehicle to strike the upper deck.





## Setting Vehicles



- After positioning vehicle on railcar, vehicle operator:
  - Places transmission in neutral
  - Sets parking brake
  - Places battery switches in "off" position

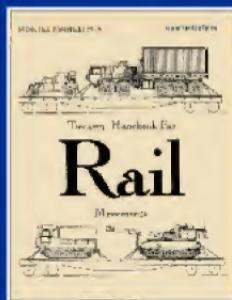


## Tie-down Procedures



- When securing vehicles use these techniques.

- ① Inspect chain assemblies and components.
- ② Apply chains in pairs
- ③ Turntable type winches





## Tie-down Procedures (Cont)



### ④ Ensure proper wire or chain tension

- Place tension on wire rope to allow no more than one inch deflection.





## Tie-down Procedures (Cont)



- ⑤ Secure excess wire rope or chain to the tension bearing part of the wire rope.
- ⑥ On chain devices, secure open-faced hooks to chain link with wire or nylon tie strap.
- ⑦ Lock chain-tightening device with wire.
  - Turnbuckles must have jam nuts tightened wrench-tight using two wrenches



## Tie-down Procedures (Cont)



- ⑧ Secure chain through tie-down points at forty-five degree angle.
- ⑨ Pull chain tight as possible, ensuring that there are no twists or kinks, and secure chain hook to chain.





## Tie-down Procedures (Cont)



- ⑩ Hand tighten turnbuckles first, then continue to tighten with open end or crescent wrench until 1/8 inch of the rubber compression ring shows.
  - Store used chain assemblies in the rail car channel



## Loading and Tie-down Checklist



- Checklists should be distributed to the loading teams. The checklist should contain the following:

**Loading and Tiedown Checklist**  
For Vehicles on Chain Tiedown Flatcars

NOTE: Copies of this page should be distributed to loading teams.

- Make certain all hood latches are secured.
- Leave at least 10 inches between vehicles.
- Check for proper brake wheel clearance.
- Do not cross the chains.
- Use symmetrical tiedown patterns.
- Secure tiedowns at approximately 45° angles.



## Loading and Tie-down Checklist (Cont)



- Checklist Cont:

- Seat and lock chain anchor or winch.
- Secure shackle in tiedown provision with wire tie or cotter pin.
- Pull chain tight and attach hook above the compression unit.
- Tighten chain.
- Use appropriate tool.
- Make sure chain is not kinked or binding.



## Loading and Tie-down Checklist (Cont)



- Checklist Cont:

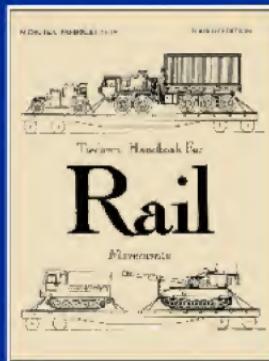
- Secure hooks with wire or nylon tie straps.
- Make sure turnbuckles are wired or locked.
- Tighten jamb nuts with two wrenches.
- Do not secure chains to axles or springs unless figure shows so.
- Make certain turrets and guns, radiator doors, side skirts, outriggers, crane booms, expandible van bodies, and so forth are secured from extending up or over the side of the flatcar.



## Tie-down Illustration



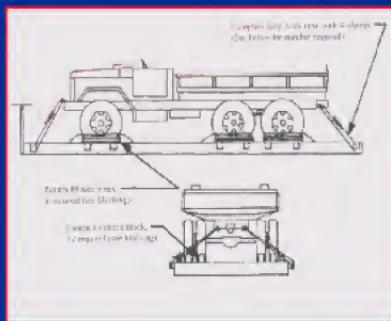
- Appendixes B and C provide tie-down procedures for the transport of military vehicles





## Three Axle Vehicle -- Tie-down Illustration

- 6 X 19  
WRC IPS  
Wire Rope

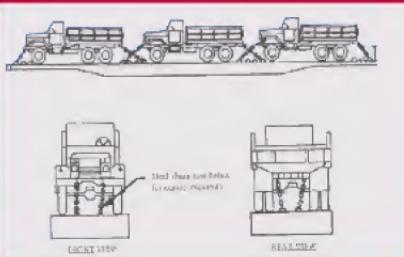




## Three Axle Vehicle -- Tie-down Illustration (Cont)



- Alloy Steel  
Chain





## Final Inspection



- Final inspection is made after the railcars are loaded to ensure that the contents are loaded, blocked and braced in compliance with AAR loading rules.
- The rail representative is the final approving authority for accepting rail loads.



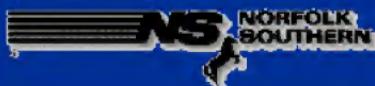
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## Rail Equipment: Characteristics and Capabilities



## Association of American Railroads

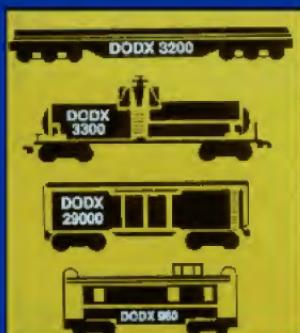


BNSE





## Defense Freight Rail Interchange Fleet



### Flatcars:

General Purpose	1477
Special Purpose	139

### Tank cars:

General Purpose	375
Special Purpose	18

### Boxcars:

Special Purpose	30
Refrigerated	9

### Misc cars:

Escort Cabooses	6
Guard Cars	5
Spec Lease	11

**TOTAL DODX:** 2070

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## ASMP Railcar Requirements



- DA DCSOPS sets priority on which installations get railcars first.

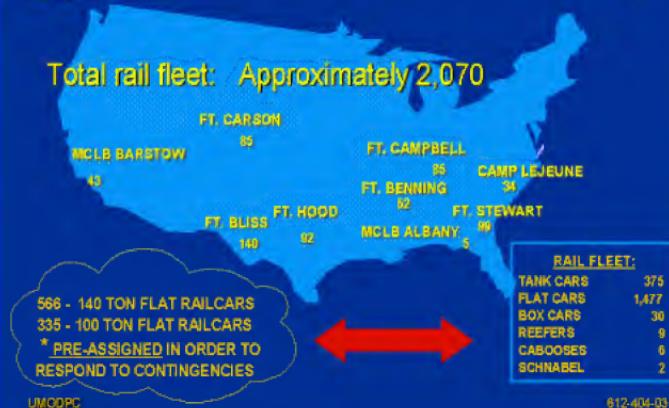
- Ft Stewart	233	AMCCOM Installations:
- Ft Hood	185	198 cars at
- Ft Carson	85	12 Ammo Plants
- Ft Campbell	236	
- Ft Benning	62	



## MTMC Managed Railcars

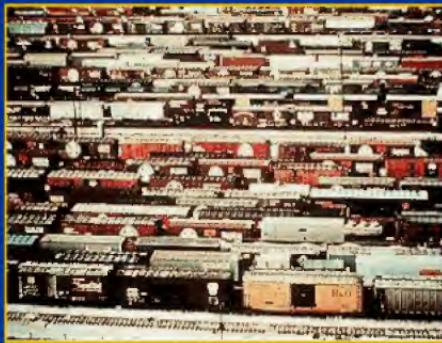


Total rail fleet: Approximately 2,070





## Railway Equipment



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## Boxcars



- US Boxcars in domestic service have a capacity of about 100k lbs., or over 3900 cu feet.
- Ideal for commodities requiring protection from weather or susceptible to pilferage: foodstuffs, medicines, electronics, spare parts





## Tank Cars



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## Gondola Cars



- If car sides are necessary to keep bulk loads from shifting, use gondola cars





## Hopper Cars



- Cars can be either covered or open at the top
- Used for transporting loose bulk commodities





## Flat Cars



- Ideal for transporting military cargo and vehicles
- Equipment may be carried on DOD or common carrier flatcars





## 68 Foot Flat Car



- 4000 Series
  - 140 Ton Capacity
  - Contains integral spanner & chains





## 89 Foot Rail Car



- 4200 - Series
- 85 -100 ton capacity
- Used for wheeled and light tracked vehicles





## Chain Tie-down Flat Cars



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## Multilevel Flat Cars



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## Multilevel Flat Cars (Cont)



- Ramps are used to load the upper levels





## Trailer on Flatcar (TOFC)



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## Container on Flatcar (COFC)



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## Switch Engines



- Used to switch rail cars in and out of a loading area.





## Line Haul Locomotives





## Caboose



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